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AUTHOR	Hertzog, C. Jay; Lieble, Charles
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IDENTIFIERS	*Valdosta State University GA

ABSTRACT

In an effort to examine the effectiveness of cooperative learning at the college level, a project was undertaken to examine outcomes for two sections of an introductory geography course at Valdosta State University, in Georgia. The first section was taught in a traditional manner, using lectures, multiple choice tests, and other traditional methods, while the other was team-taught with the same professor and a social studies specialist from the University's School of Education. Students in the experimental section were given learning styles and brain hemisphere preference inventories on the second day of class and were divided into cooperative groups based on inventory results and gender. The students were seated in the classroom according to their groupings which were changed three times during the quarter. A comprehensive examination consisting of 50 multiple choice and 3 essay questions was administered to both groups at the beginning and again at the end of the course. Outcomes for the two groups were determined based on results of these examinations, scores on three 1-hour tests and seven map quizzes given in the course, and attendance patterns. Findings indicated that the use of cooperative learning strategies resulted in no significant differences between courses, but that student participation in the experimental group was considerably higher and attendance was more consistent. It was also determined, however, that instruction in the control group was contaminated, as the instructor applied insights gained from the cooperative group. Includes recommendations for improving the research design. (TGI)

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Arts and Science/School of Education: A Cooperative Approach to the Teaching of Introductory Geography

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C. Jay Hertzog
Charles Lieble

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ARTS AND SCIENCE/SCHOOL OF EDUCATION: A COOPERATIVE APPROACH TO THE TEACHING OF INTRODUCTORY GEOGRAPHY

C. Jay Hertzog
Charles Lieble
Valdosta State University

Abstract
This project was begun to examine the effectiveness of cooperative learning at the college level. The professor of the introductory geography course in the School of Arts and Sciences taught one of his two classes in his traditional manner, i.e., lecture, multiple choice tests, etc. The second class was team taught with the social studies specialist from the Department of middle Grades Education, School of Education.

Introduction
At the start of the quarter, the team-taught class was given several inventories to determine their learning styles and hemisphericity. Based on this information plus their gender, this class was divided into groups of four. The method of presentation for this second class was modified so that it reflected the strengths of both the geography professor and the middle grades professor.

Following class-wide information sessions the students were given study questions, broken into their groups, and provided with class time to answer the questions. The tests for both groups were changed from only a multiple choice format to multiple choice and discussion questions.

The results of this study will be presented with recommendations for further work.

A complaint heard on many college campuses is that the faculties in the College of Arts and Sciences (A&S) and College of Education (ED) don't speak to each other. Much of this is derived from those in both camps who indicate that their colleagues: a) don't teach any content--the A&S complaint about those in Education; and b) don't incorporate current pedagogy, i.e. classes are taught in the lecture format -the ED complaint about those in A&S.

This study was begun to examine if the research pertaining to cooperative learning in the elementary and secondary sectors of public education (Slavin, 1988) could be of any value in the college classroom. The course, Introduction to Geography, was selected because the A&S instructor taught the course and the ED instructor was the social science specialist in the Department of Middle Grades Education. The course was an elective for any student in the University and may be used as partial fulfillment of the Social Science core requirement. In addition, those students in the College of Education who declare social studies as an area of concentration are encouraged to enroll in the course.

Background
In 1992, the Regents of the University System of the State of Georgia adopted their Plan for Change. This document specified that colleges and universities within the system increase the number of content courses within their teacher preparation programs. This mandate has led Valdosta State University to form committees comprised of faculty from the College of Arts and Science, Education, and public school teachers. These committees met and discussed approaches to improve the knowledge base of pre-service teachers.

At the outset, the thrust of the A&S faculty members on the committees was to add more courses in the various content areas, especially for those individuals who were preparing to teach in the middle grades and senior high schools. The ED faculty countered with a proposal to have new courses developed which would integrate the subject matter of various courses and present a more connected approach to the various content areas. This would provide the ED majors with the necessary content without jeopardizing pedagogy. The social sciences in particular came under close scrutiny with the spread of the content being divided over five distinct disciplines.

The Course

Introduction to Geography is an overview course designed to provide students with a cross-cultural awareness of the world. It incorporates all aspects that impact on geography, i.e. physical features, political features, culture, and climate to name just four. Prior to the current study, the format used for instruction in the class followed a lecture approach with limited opportunity for student input. When student input was encouraged it tended to be either Level I--Knowledge, or Level II--Comprehension, based on Bloom's Taxonomy (Bloom, 1976).

An added component of the class included map quizzes designed to provide the students with a knowledge of where and why places were located. The entire learning for this element of the course was the responsibility of the student. During the course of the academic quarter (10 weeks), the students were given seven lists containing places to be found on their maps in the various regions being studied. When the quizzes were given, they had to identify 25 places as selected by the instructor on a blank map. This portion of the course accounted for 25 percent of the student's course grade.

In addition to the map quizzes, the students were given three multiple choice tests and one final comprehensive examination with one short answer essay question. The multiple choice information was obtained through assigned textbook readings and the instructors lectures. The short answer essay question was of the Level II or III--Application Level (Bloom, 1976).

The Study

The course, Introduction to Geography was offered Monday through Friday during the Winter Quarter, 1993. One class was scheduled from 10 AM - 10:50 AM; the other class from 11 AM - 11:50 AM. It was decided that the method of investigation would follow the experimental model with a test/retest format. Because of instructor schedules, the 10 AM class was designated the control group, i.e., taught according to the traditional lecture method, only one instructor, multiple choice tests, and limited student involvement model. The 11 AM class was designated the experimental group, i.e., team taught by the two instructors. This class incorporated cooperative groups, presented students with questions ranging from Comprehension to Evaluation (Bloom, 1976).

Control Group

The control group did not notice any real difference in the way in which their class was taught. Students were not assigned seats, and since attendance was crucial (the instructor had a policy that after the 15th absence out of 50 possible classes a student automatically received a failing grade for the course), each session for both groups began with attendance being taken. Following the attendance, the instructor lectured on the material that was to be covered for that class. Although students were encouraged to participate through various questions presented by the instructor, the interaction was limited to only a few of the total number of students. In addition, this interaction was limited by structure of the questions to the Level I or Level II variety. The students in this group obtained the requisite knowledge by taking notes and reading the assignments in the textbook.

Experimental Group

This group had a different appearance in that both the A&S instructor and the ED instructor team taught the material. This took the form of professorial interaction during the introductions to the various units. On the second day of the quarter, each student in the experimental class was given a hemisphericity inventory (right brain/left brain) as well as a learning styles inventory. The data obtained from these surveys were matched with the students' gender to determine their placement into cooperative groups. The students were seated in the classroom according to their groupings which were changed three times during the quarter. This permitted the students to get to know others within the class as well as providing a balance for those members of the groups who were not carrying their weight. As the various units were studied, each group received the same set of questions for that particular unit and were given class time to work in groups on the answers.

Each unit was begun with an overview of the topic provided by the instructors who, rather than maintaining a strict lecture format, attempted to involve the students in discussions of the topics being studied through higher level questioning. Following the introduction, no more than two days in length, two days of class time was

provided for the students to work in their groups as they answered the questions posed to them. These questions ranged from the identification of various terms necessary to gain a deeper understanding of the unit to Level V - synthesis, and Level VI - evaluation, types of questions (Bloom, 1976). During this work time the instructors served as resource people, moving from group to group, assisting as needed. These work days were followed by two to three days of group discussions on the questions examined by the groups and enhanced as needed by the instructors.

Testing of Both Groups

At the outset of the study, both groups were given a comprehensive examination on the material that was to be covered in the various units. This test included 50 multiple choice items and three essay questions to determine if the students gained insight into the subject matter during the quarter. This same test was administered on the last day of class held during the quarter, prior to the final examination.

A second area used to assess student knowledge was the three one-hour tests which were developed by pairing the units covered. The students were also given seven map quizzes which included the areas covered by the various units. Finally, the attendance record for both groups was tracked carefully.

Data Analysis

The collected data of the two groups were examined using the Statistical Package for the Social Sciences (SPSS). Variables which were examined included attendance, pre-test score, post-test score, major examination scores, and map quiz scores. In all cases, these variables were subjected to a t-test with a two-tail probability.

Results

Although none of the paired measures were statistically significant at the .05 level using a paired sample t-test, an examination of the pre-test/post-test mean provided interesting information. The pre-test mean for the control group was found to be 10.89 while the same measure for the experimental group yielded a score of 10.12. The post-test means for these two groups indicated that the control group's mean was 20.05 while the experimental group's was 20.40. A comparison of the means was conducted and found that although both groups showed improvement over the duration of the course, the experimental group showed an increase in their mean of 100.12% while the control group's increase amounted to 80.3%.

Discussion

The use of cooperative learning strategies within a class taught in the College of Arts and Sciences, although showing no significant difference over a similar class taught through the traditional lecture approach, did yield some interesting findings. Students participation in the experimental group was considerably higher due to the nature of the instructional method. In addition, attendance was more consistent in the experimental class than the control class. It may be speculated that this was because classmates depended on the individual's attendance to assist in finding answers to the various questions which were presented by the instructors.

It was also observed through the duration of the class that the A&S instructor had a tendency to infuse some of the material being discussed in the experimental group into the control group. This was noted by the observing instructor, however, this was noted after the fact and the contamination of the control group occurred.

Recommendations

If an experiment to determine the effectiveness of cooperative approach to learning versus the traditional lecture approach is to take place in the future, it is recommended that the following procedures be followed:

1. The teaching methods of each group be kept sterile, i.e. that the lecture group not be infused with information obtained from the cooperative group nor the cooperative group be infused with information from the lecture group;
2. That the two distinct parts of the tests which are given be examined separately, i.e. the multiple choice items from each group be compared with each other and the essay part from each group be compared with each other. This will present the researchers with information concerning applied knowledge of the students;

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3. Obtain a larger "n." It was very difficult to find significance in a study of this type with class size as small as it was (mid 30s for both classes). With the difference in mean scores between the two groups in the pre-/post format, it seems logical to assume that a larger "n" would produce some level of significance in a future study; and

4. That each group in the experimental class be given a different set of questions. With each group receiving the same set of questions, a perceived impression was that some students did not participate as actively since they knew that their peers would have the answers for them; and

5. Cooperative learning techniques can be applied to the college classroom. In addition to the comparison of the means mentioned above, indications were that student attendance improved and that student participation increased. It must be noted, however, that the methods used in this study involved an examination of the student's learning style, hemisphericity, and gender; not only having students sit together in groups to answer questions.

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